ISST Review and Update

Science and Technology Committee Meeting

3 February 2004

Outline

- Review accomplishments and activities
- Eta extension
- Updated roadmap
- Analysis of Record
- FSL Resources for GFE Development

Accomplishments and Activities

- Identified an opportunity to fill "transmission gaps" on the SBN and developed a proposal now nearly implemented
  - Eta surface and BL fields
- Working with MDL on their efforts to develop COOP MOS (now in GFE) and gridded MOS
  - Number of MOS sites increased by an order of magnitude
- Provided scientific critique and feedback into the 10-506 directive process and NVIWT verification plan design
- Recently met w/ Digital Services CONOPS team
- Investigated and prioritized a spectrum of downscaling possibilities and reported to S&T Committee
- Conceived, developed, and championed the Eta extension

8-day Eta Extension

- Background:
  - Designed to bring quick relief to forecasters by giving physically consistent and seamless option for high resolution medium range grids
  - Has received broad support from Regions

- Status and timeline:
  - Tasking complete
  - Change Notification in process (consolidation of Eta run)
  - Test grids available to setup optimal baseline SMARTINIT
  - March: 30-day testing and evaluation period
    - Forecasters at a subset of WFOs to assess impact on operations
    - Better evaluation of internal drift issues (limited set of fields available via a webpage)
    - Test Regional WAN distribution method
    - HPC will perform model diagnostics

8-day Eta Extension (continued)

- Mid April: convergence of Eta runs complete and Eta extension running operationally
  - GRIB1 Regional distribution continues

- Late May: DVB-S efforts free up SBN bandwidth

- June: OB3.2 upgrade to AWIPS configuration

- June: Eta extension operational via SBN using GRIB2

Updated Roadmap

- New prioritized list of action topics:
  - Analysis of Record
  - Digital Services forecast process
  - Climatology
  - Downscaling (long-term solutions)
  - Review of 10-506 (preliminary review to OCWWS by late March)
  - Uncertainty and probabilistic information
- Short term actions (next 2-3 months)
  - Verification (prioritize tasks in NVIWT Verification Plan)
  - Input to 10-102 (declaring elements official)

Activities with Ongoing Monitoring

- Grid change management
- GFE enhancements
- SBN data
    - GFS bottleneck on mainframe
- TCM (Tropical Cyclone Message)
- Gridded MOS

Analysis of Record
(A real-time, mesoscale analysis of all forecast grids)

- Lots of ideas and discussion, but effort must be organized quickly

- Grid spacing must match highest-resolution forecasts

- Will have to mature from early prototype 2-d analysis of primary fields

- Impact of model used for first guess must be accounted for and minimized

- Observation system must be supported

- Some groups already designing systems to include analysis of record and associated analysis techniques

Analysis of Record (continued)

- This may prove to be the Holy Grail of the digital era

- Unfortunately, it is an integral part of:
  - The forecast process
  - Verification
  - Customer motivation and acceptance
  - Conditional climatologies
  - Statistical applications and bias corrections
  - Numerical weather prediction

Analysis of Record (continued)

- Seeking a solution
  - Charter a team to create an "Analysis of Record" Roadmap
    - Diverse team of experts (both within and outside NWS)
    - Seek assistance from research community
      - USWRP
      - CSTAR
      - COMET projects
    - Plan should thoroughly examine existing analysis systems for possible inclusion or modification
      - Inventory and coordinate Regional efforts already underway
    - Work in coordination with MDL and NCEP

FSL Resources for GFE Development

- FSL role still critical to attaining field functionality

- IFPS focal point position paper last fall

- Tentative agreement to fund another FTE

- Effort de-railed

- Especially with VTEC emphasis, resources not available to meet immediate field requirements

Closing comments

- Good progress over past 8 months
- We endorse Digital Services Program Office
- Verification is still critical to decision making process and must gain momentum

Background Slides

COOP MOS

- **The graphics to follow are a GFS MaxT forecast from MatchMOSAll.**
  - **The first image is running MatchMOSAll with just standard GFS MOS.**
  - **The second image is running MatchMOSAll with standard GFS MOS plus the COOP MOS (there are additional COOP stations used in the analysis that are outside the SLC CWA).**
  - **The third image is the difference between the 1st two images.**
- **These graphics are produced using Tim Barker's MatchMOSALL run on the background GFS SmartInit grid in GFE. Tim's tool uses an elevation dependent serpentine fit to whatever points are available to the routine.**
- **25 offices have registered as using getCoopMOS (to download data) and 40 have registered to use MatchMOSALL (to use the data); typically only about half of those that download the software register it**

- **Text bulletin derived from GFS COOP MOS**
- **GFS-BASED MOS COOP MAX/MIN GUIDANCE   1/27/04 1200 UTC**

- Wasatch front--
-              WED 28| THU 29| FRI 30
- ALPINE   UT 28 42| 29 42| 30 46
- BOUNTIFUL-VAL VER UT 28 41| 29 44| 31 45
- DRAPER POINT OF M UT 29 43| 30 49| 32 50
- FAIRFIELD   UT 21 42| 22 45| 20 45
- GARFIELD   UT 31 44| 32 47| 34 47
- LEVAN   UT 22 42| 22 46| 25 46
- NEPHI   UT 22 40| 23 44| 24 46
- OGDEN SUGAR FACTO UT 28 41| 28 44| 29 45
- OLMSTEAD P H   UT 28 42| 29 46| 28 47
- PLEASANT GROVE   UT 28 42| 29 47| 31 46
- PROVO BYU   UT 29 42| 30 47| 32 48
- SALT LAKE CITY E UT 28 41| 29 45| 29 47
- SANTAQUIN CHLORIN UT 26 41| 26 45| 27 46
- SPANISH FORK PWR UT 28 41| 28 45| 28 46
- THIOKOL PROPULSIO UT 25 38| 25 42| 23 41
- UTAH LAKE LEHI   UT 22 42| 22 44| 23 45
- VERNON   UT 21 43| 23 46| 22 47
- Cache Valley--
-              WED 28| THU 29| FRI 30
- PRESTON   ID 23 37| 24 35| 24 41
- LOGAN RADIO KVNU UT 23 39| 26 42| 24 42
- LOGAN UTAH STATE UT 27 40| 26 38| 26 43
- LOGAN 5 SW EXP FA UT 25 39| 26 40| 25 43
- RICHMOND   UT 26 38| 29 42| 25 40
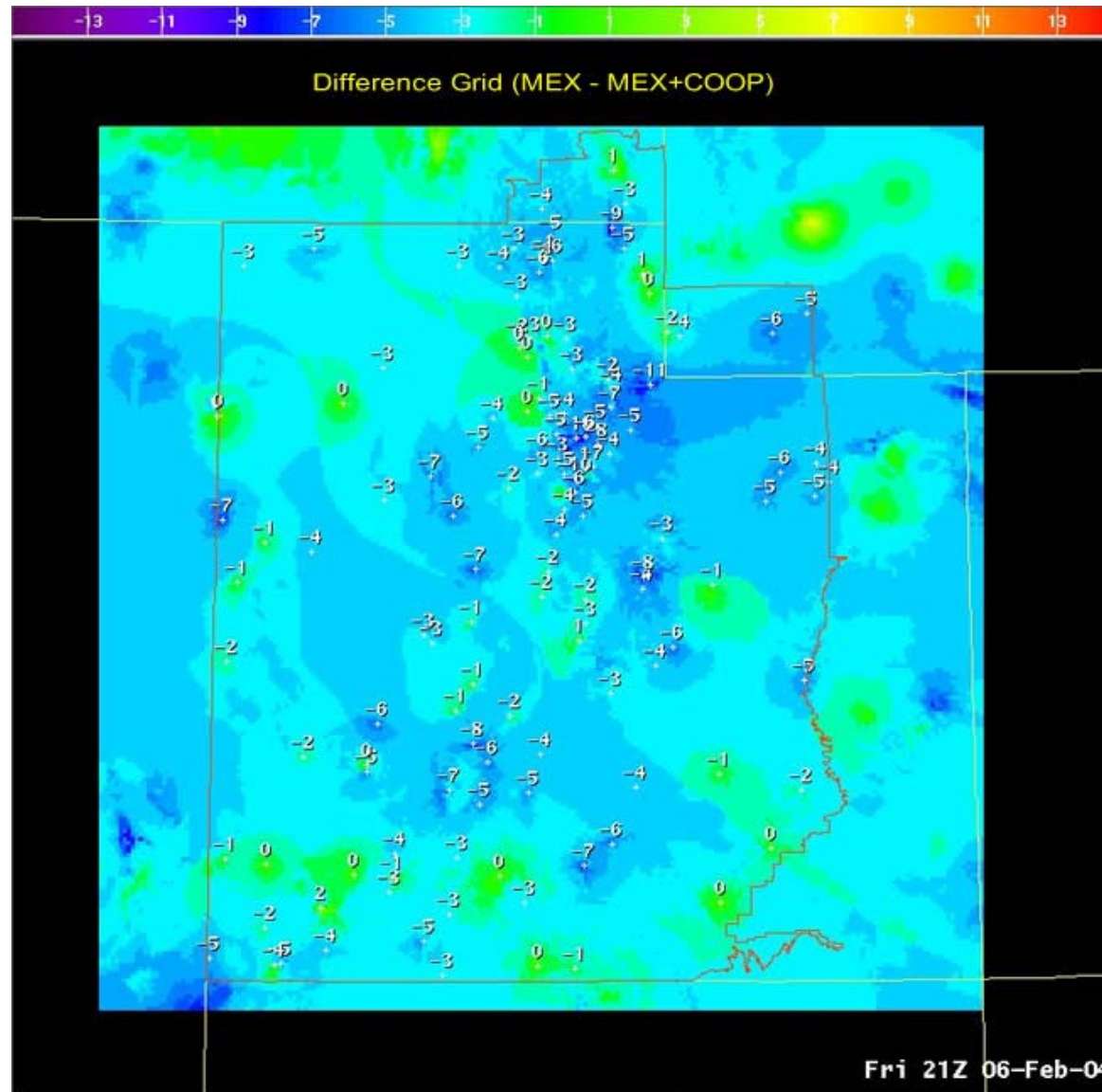
MatchMOSAll with just standard GFS MOS
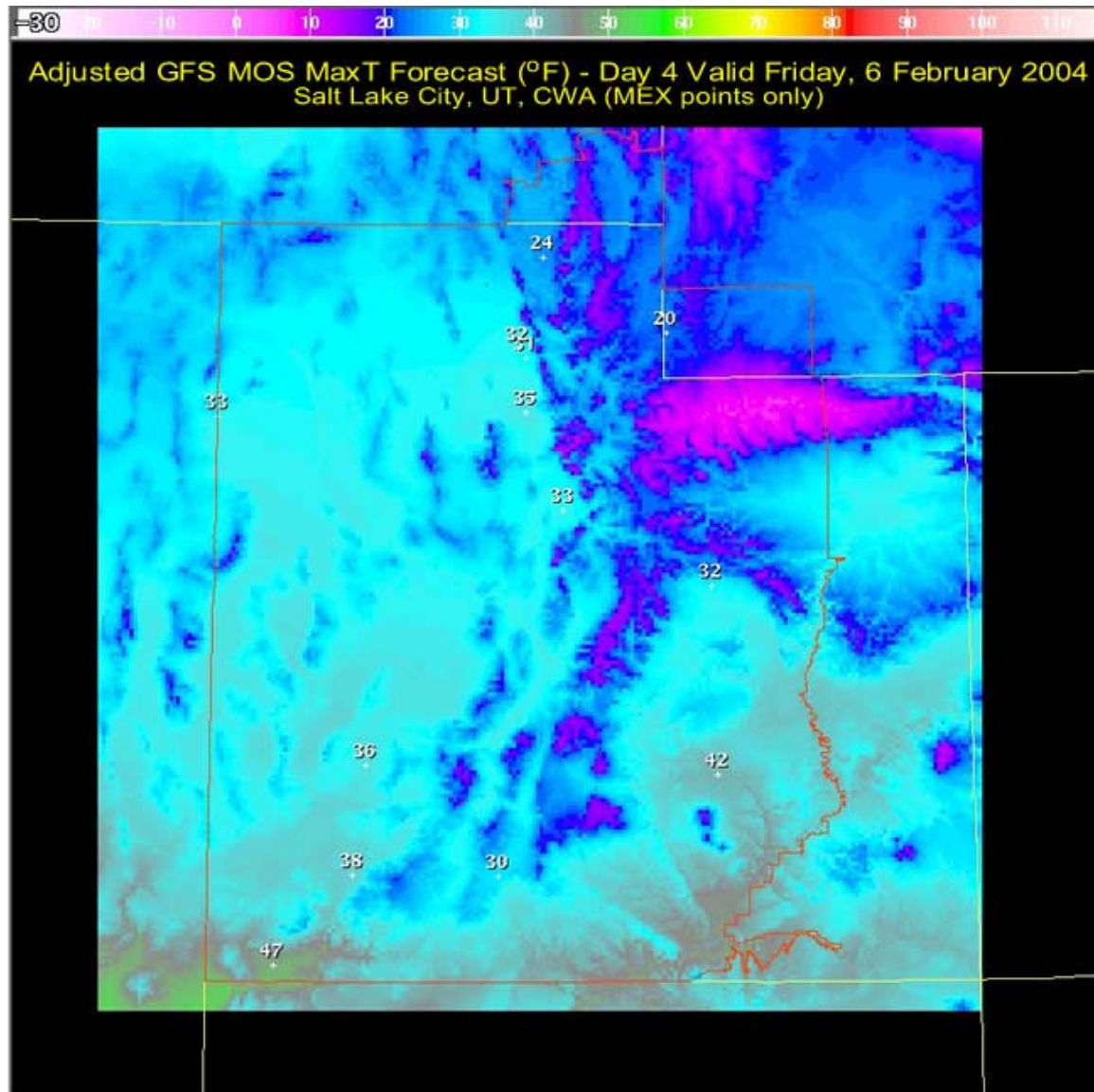
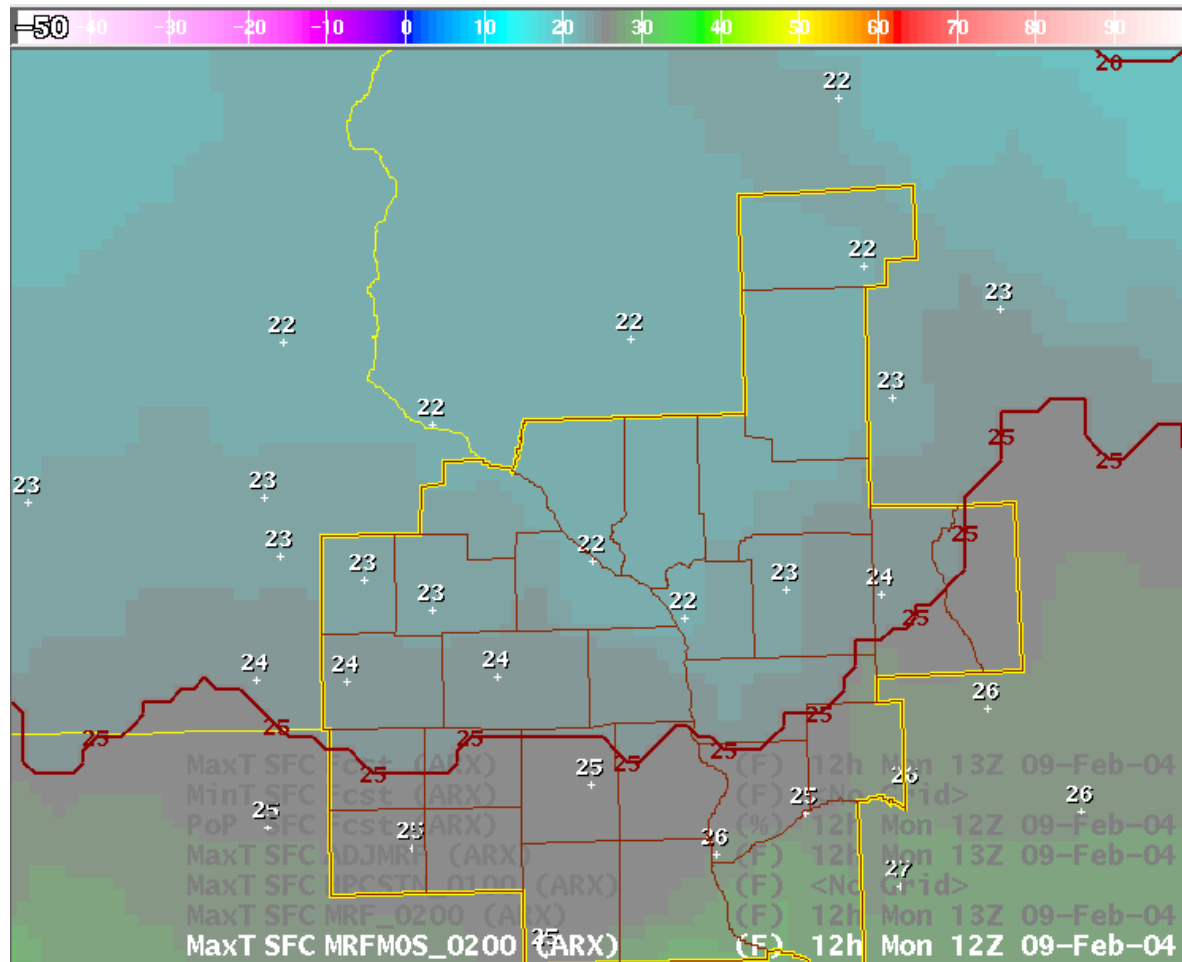# MatchMOSAll with standard GFS MOS plus the COOP MOS
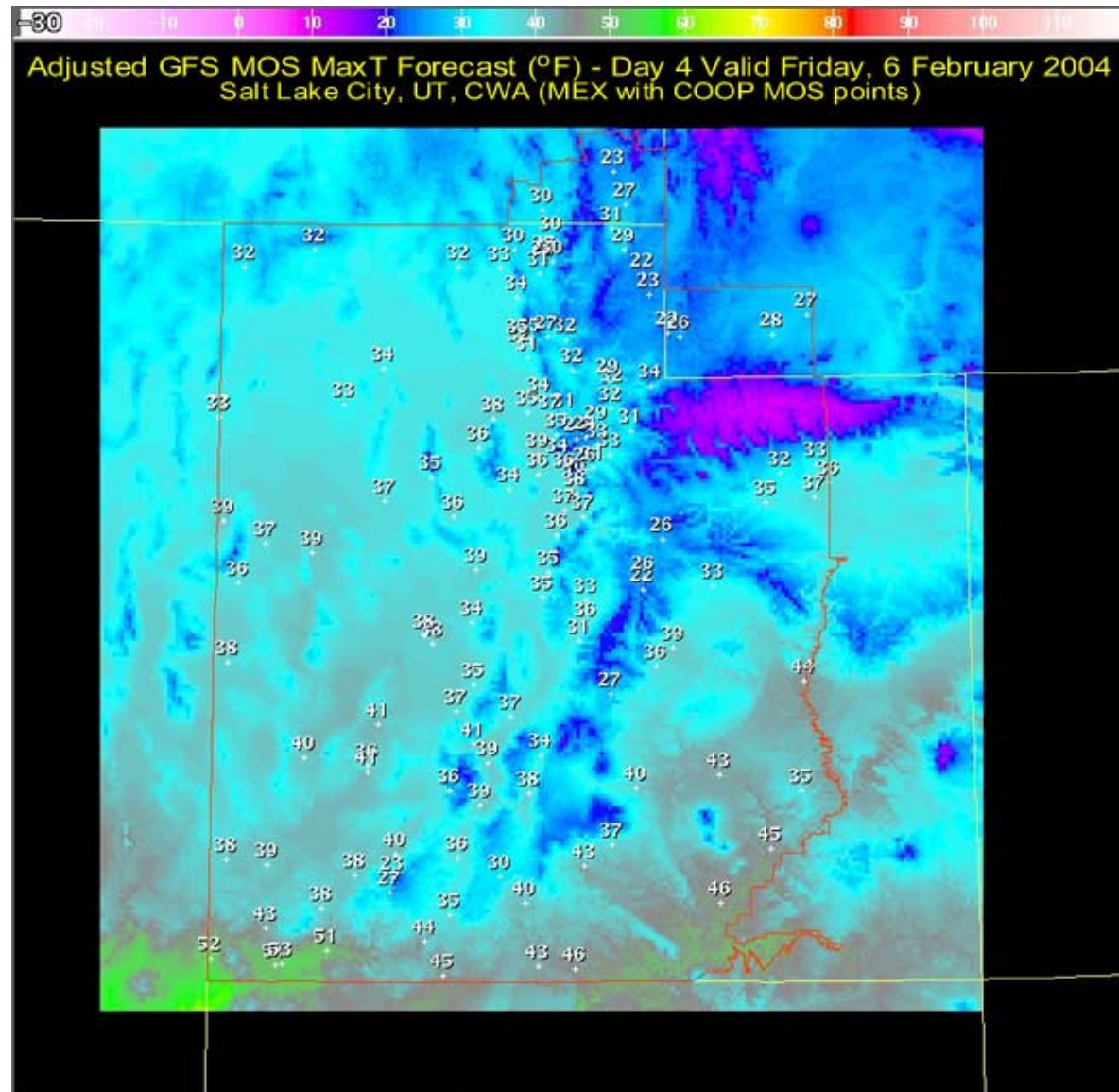
difference between the 1ˢᵗ two images

(MatchMOSAll with standard GFS MOS plus the COOP MOS - MatchMOSAll with just standard GFS MOS)

MatchMOSAll with just standard GFS MOS

MatchMOSAll with standard GFS MOS plus the COOP MOS